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**United States Patent** [19]**Slemmer**[11] **Patent Number:** **5,781,043**[45] **Date of Patent:** **Jul. 14, 1998**[54] **DIRECT CURRENT SUM BANDGAP VOLTAGE COMPARATOR**[75] **Inventor:** William Carl Slemmer, Dallas, Tex.[73] **Assignee:** SGS-Thomson Microelectronics, Inc.,  
Carrollton, Tex.[21] **Appl. No.:** 932,930[22] **Filed:** Sep. 18, 1997**Related U.S. Application Data**[63] Continuation of Ser. No. 606,233, Feb. 23, 1996, abandoned,  
which is a continuation of Ser. No. 56,301, Apr. 30, 1993,  
abandoned.[51] **Int. Cl.<sup>6</sup>** ..... **H03K 5/22**[52] **U.S. Cl.** ..... **327/78; 327/77; 327/361;**  
**327/539; 327/541; 327/542; 327/543**[58] **Field of Search** ..... **327/74, 77, 78,**  
**327/530, 538, 540, 541, 543, 545, 546,**  
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5,373,227 12/1994 Keeth ..... 327/541**Primary Examiner**—Terry Cunningham**Attorney, Agent, or Firm**—Theodore E. Galanthay; Kenneth  
C. Hill; Lisa K. Jorgenson[57] **ABSTRACT**

A direct current sum bandgap voltage comparator for detecting voltage changes in a power supply. The direct current sum bandgap voltage comparator includes a summing node, current sources connected to the summing node and the power supply, and an indicator circuit connected to the summing node. Each current source supplies a current to the summing node wherein the summing node voltage level is responsive to the currents supplied. The indicator circuit is responsive to changes in the summing node voltage level and generates at an output a logical signal at one state when the summing node voltage level is greater than a predetermined value and generates the logical signal at the output at another state when the summing node voltage level is less than the predetermined value, the predetermined value corresponding to a preselected power supply voltage.

**23 Claims, 2 Drawing Sheets**